

APPLICANT ARGUMENTS/REMARKS

Applicant has carefully reviewed and considered the Final Office Action mailed on August 29, 2007, and the references cited therewith. This first reply is being filed within two months of the August 29, 2007 mailing date of the Final Office Action.

Claims 1-21, 28-30, 37, 42-54, and 79 were previously cancelled. No amendments to the claims are being made. Claims 22-27, 31-36, 38-41, 55-78, and 80-91 are pending. Please charge any required fee or credit overpayment to deposit account 502931.

Claim Rejections – USC § 103

Applicable Law

The Examiner has the burden under 35 U.S.C. § 103 to establish a *prima facie* case of obviousness. *In re Fine*, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). To establish a *prima facie* case of obviousness, **three basic criteria** must be met. First, there must be some **suggestion or motivation, either in the references themselves or in the knowledge generally available** to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a **reasonable expectation of success**. Finally, the prior art reference (or references when combined) must **teach or suggest all the claim limitations**. *M.P.E.P.* § 2142 (citing *In re Vaeck*, 947 F.2d, 488, 20 USPQ2d 1438 (Fed. Cir. 1991)).

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *M.P.E.P.* § 2142 (citing *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991)). The references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references. *M.P.E.P.*

§ 2142 (citing *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985)). In considering the disclosure of a reference, it is proper to take into account not only specific teachings of the reference but also the inferences which one skilled in the art would reasonably be expected to draw therefrom. *M.P.E.P.* § 2144.01 (citing *In re Preda*, 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968)). However, if the proposed modification would render the prior-art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification. *M.P.E.P.* § 2143.01 (citing *In re Gordon*, 733 F.2d 900, 221 USPQ 1125 (Fed. Cir. 1984)).

Discussion of the rejection

As an initial matter, Applicant respectfully submits it is improper for the Examiner for the first time to assert a new reference supporting a 35 U.S.C. 103(a) obviousness rejection, and to make the Office Action final. **Applicant respectfully requests that the Office Action of August 29, 2007 be made non-final. (Even though the new reference is mentioned only in the Examiner's remarks to the Applicant's arguments, it is clearly part of the 103 obviousness rejection and should have been included as part of the 103 rejection, which then presents new grounds of rejection to which the Applicant must be given an opportunity in a non-Final to respond to.)** No substantive claim amendments were made in the response to the previous Non-Final Office Action.

Additionally, the newly cited reference U.S. Patent No. 6,344,366 (hereinafter "*Bates*"), teaches away from the claimed invention. *Bates* describes in column 1, lines 50-64:

The method can also include rapid cooling of the LiCoO_2 50 film after holding the LiCoO_2 film within the target temperature range for the target annealing time. The target temperature is preferably greater than approximately 700°C ., more preferably at least approximately 800°C ., and most preferably at least approximately 850°C .. Further, the target 55 temperature range is preferably approximately $700\text{--}1000^\circ\text{C}$., more preferably approximately $750\text{--}950^\circ\text{C}$., and most preferably approximately $850\text{--}950^\circ\text{C}$.. The target annealing time is preferably at most approximately an hour, more preferably at most approximately 30 minutes and most 60 preferably at most approximately 15 minutes. Further, the target annealing time is preferably approximately 5–60 minutes, more preferably approximately 10–20 minutes and most preferably about 12–17 minutes.

Applicant respectfully submits the temperatures of the method taught in *Bates* preclude combining with the teachings of Tuttle et al. to produce the present invention. Claims 36, 55, 72, 76, 81, 83, and 86 recite that the substrate comprises a polymer having a melting point substantially below 700 degrees centigrade. Therefore, the utilizing the teachings of *Bates* would result in the destruction of the flexible substrate of Tuttle and of the claimed present invention of these claims. Reconsideration and withdrawal of the rejection of claims 36, 55, 72, 76, 81, 83, and 86 are respectfully requested.

The remaining arguments in this response are essentially the arguments previously presented to the previous Non-Final Office Action.

Regarding Section 2 of the August 29, 2007, Office Action: Claims 22-27, 31-36, 38-41, 55-78, and 80-91 were rejected by the Examiner under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,448,110 (hereinafter "*Tuttle et al.*"). Applicant respectfully traverses.

The Examiner asserted that *Tuttle et al.* is directed to an enclosed transceiver device comprising a battery (60) located on a substrate (78), a capacitor (62) on the battery, and an integrated circuit (64) on the capacitor (see Fig. 5B).

Applicant respectfully submits that *Tuttle et al.* do not describe or suggest a thin-film battery deposited as successively deposited layers on the substrate, the layers including a cathode

layer, an electrolyte layer, and an anode layer. Rather, *Tuttle* places or aligns substantially completed batteries on the assembly and adhesively connects the parts.

Regarding claim 24, the Examiner does not address this claim, which recites “successively depositing a plurality of thin-film layers on the substrate, the plurality of successively deposited layers forming a solid-state battery and a capacitor electrically connected to one another.” The successive successively depositing a plurality of thin-film layers is not described or suggested in the *Tuttle et al.* (*Tuttle et al.* merely state that “various modifications and changes may be made” without describing what those might be. Thus, the Examiner has failed to provide a *prima facie* case of obviousness, since the prior art reference (or references when combined) do not **teach or suggest all the claim limitations**. *M.P.E.P.* § 2142, *In re Vaeck*.

The Examiner asserts

“ The reference further does not expressly teach that the battery and/or capacitor layers are “successively” deposited on the substrate, as recited in claims 24, 27, 31, 33, 63-68, 77, and 78. However, the reference provides sufficient guidance for the artisan to manufacture the apparatus in this way. First, it is noted that in column 9, line 25 et seq., it is disclosed that the components of the apparatus (i.e., thin film battery, capacitor, and integrated circuit) are adhered together with conductive epoxy, suggesting that the components are pre-fabricated. However, at column 12, line 64, the reference discloses the following:

For example, various modifications and changes may be made in the antenna configurations, battery arrangements (such as battery stacking), device materials, device **fabrication steps**, and the functional block diagrams without departing from the scope of this invention. **The various off-chip components such as the antenna, battery, and capacitor are manufactured on-chip in alternate and equivalent embodiments.** (emphasis added).”

However, *Tuttle et al.* fail to describe or enable any such supposed particular embodiment, much less that of the present claimed invention. It is impermissible for the Examiner to use hindsight from the present application to assert that a prior-art reference that merely says “various modifications and changes may be made” would lead one of skill in the art to conclude that the reference teaches any particular modification or change. Applicant respectfully submits that the reference does not provide “sufficient guidance for the artisan” as asserted by the Examiner. If the Examiner is relying on common knowledge or taking Official Notice of such guidance, Applicant traverses this finding and respectfully requests under MPEP § 2144.03 that the Examiner provide documentary evidence in the next Office action if the rejection is to be maintained. *See* 37 CFR 1.104(c)(2). *See also Zurko*, 258 F.3d at 1386, 59 USPQ2d at 1697.

Since the Office Action failed to provide a *prima facie* case of obviousness, claim 24 and its dependent claims appear to be in condition for allowance, and reconsideration and withdrawal of the rejection are respectfully requested.

Regarding claims 36 and 55-59 of the present invention, the Examiner asserted that the *Tuttle et al.* substrate comprises a polymer such as polyester or polyethylene which can be laminated with metal, PVDC, or SiN (see *Tuttle et al.*, col. 9, line 20). Applicant respectfully submits that *Tuttle et al.* does not describe or suggest a substrate comprising a polymer having a melting point substantially below 700 degrees centigrade, wherein the layers are deposited as successive thin-film layers as claims 36 and 55 of the presently claimed invention do. **Further, the Examiner submits that *Bates* provides a portion of the obviousness support of his argument, but *Bates* does not work with a substrate having a melting point substantially below 700 degrees centigrade since *Bates* anneals to a temperature greater than 700 C (see *Bates* column 1 lines 50-64).** Still further, Applicant respectfully submits that *Tuttle et al.* fails to describe or suggest a substrate that includes a metal foil, a ceramic, or a glass as recited in claims 56 and 57, 58, and 59 respectively. Although *Tuttle et al.* describes

“Base starting material includes a first or base polymer layer 78, such as polyester or polyethylene, which is laminated with a relatively impermeable material such as metal film, PVDC, or silicon nitride,”

This does not describe or suggest the limitations of metal foil, a ceramic, or a glass as recited in the above-listed claims. Thus, the Examiner has failed to provide a *prima facie* case of obviousness, since the prior art reference (or references when combined) do not **teach or suggest all the claim limitations**. *M.P.E.P.* § 2142, *In re Vaack*. Accordingly, claims 36 and 55-59 appear to be in condition for allowance, and reconsideration and withdrawal of the rejection are respectfully requested.

Regarding claims 27 and 31 of the present invention, among others, the Examiner asserted that *Tuttle et al.* describe an insulating layer (100) that is deposited on the device and traces (“through vial” (sic, should be “through vias”)) (128) that electrically

interconnect the components (see Fig. 6E of *Tuttle et al.*). Applicant respectfully disagrees, in that *Tuttle et al.* describe that the insulating layer 100 is a **prefabricated** insulating layer 100 that is **laid** over the battery/capacitor/IC stack (column 9 lines 48-50, emphasis added), not an insulating layer that is deposited (i.e., formed) in place as described and claimed. Further, these claims depend on claim 24, which appears in condition for allowance as argued above, and thus form combinations that must be considered as a whole. Accordingly, claims 27 and 31 appear to be in condition for allowance, and reconsideration and withdrawal of the rejection are respectfully requested.

Regarding claims 90 and 91 of the present invention, the Examiner asserted that *Tuttle et al.* describe an encapsulation layer (114) that is present on the device. However, having an encapsulation layer **present on the device** is not the limitation recited in these claims, rather they recite “**depositing** an encapsulation layer on the combined battery and device apparatus.” (Emphasis added.) In contrast, *Tuttle et al.* describe “This device includes, in combination, an integrated circuit (IC) which is mounted in an approximately one inch square package and is **encapsulated**, for example **laminated**, in a flexible or rigid thin film material.” (Emphasis added.) Further, these claims depend from claims 24 and 31, respectively (and which appear to be in condition for allowance for the reasons argued above), and must be considered as a whole. Accordingly, claims 90 and 91 appear to be in condition for allowance, and reconsideration and withdrawal of the rejection are respectfully requested.

Regarding claims 88 and 89 of the present invention, the Examiner asserted that *Tuttle et al.* describes a recharging circuit that is present in the integrated circuit (see *Tuttle et al.*, col. 11, line 5).) These claims depend from claims 24 and 31, respectively (and which appear to be in condition for allowance for the reasons argued above), and must be considered as a whole. The Examiner admitted on page 4 of the March 12, 2007, Office Action that *Tuttle et al.* does not expressly teach that one or both electrodes contain an

intercalation material, as recited in each of the independent claims. The Examiner asserted, however, that the invention as **a whole would have been obvious** to one of ordinary skill in the art at the time the invention was made because the artisan would be motivated to use such materials in the battery of *Tuttle et al.* The Examiner however is required to provide documentation showing a prior art reference (or references when combined) that **teach or suggest all the claim limitations**. *M.P.E.P.* § 2142, *In re Vaeck*. Thus, the Examiner has failed to provide a *prima facie* case of obviousness, since the prior art reference (or references when combined) do not **teach or suggest all the claim limitations**. If the Examiner is relying on common knowledge or taking Official Notice of some other teaching, Applicant traverses this finding and respectfully requests under MPEP § 2144.03 that the Examiner provide documentary evidence in the next Office action if the rejection is to be maintained. *See* 37 CFR 1.104(c)(2). *See also Zurko*, 258 F.3d at 1386, 59 USPQ2d at 1697. Since the Office Action failed to provide a *prima facie* case of obviousness, claims 88 and 89 appear to be in condition for allowance, and reconsideration and withdrawal of the rejection are respectfully requested.

Regarding claims 24, 27, 31, 33, 63-68, 77, and 78, the Examiner further admitted on page 4 of the March 12, 2007, Office Action that *Tuttle et al.* does not expressly teach that the battery and/or capacitor layers are "successively" deposited on the substrate, as recited in claims 24, 27, 31, 33, 63-68, 77, and 78. The Examiner asserted, however, that *Tuttle et al.* teaches that on-chip fabrication techniques are at least equivalent to off-chip techniques, and that this would render obvious the claimed steps of successively depositing layers on a substrate as recited in claims 24, 27, 31, 33, 63-68, 77, and 78. The Examiner also asserted that, absent evidence to the contrary, the reordering of method steps is generally not sufficient to patentably distinguish over a reference. Applicant respectfully traverses. It is the Examiner who bears the initial burden of showing obviousness. Applicant respectfully contends that depositing thin-film layers successively on a substrate is not am mere reordering of steps, since depositing thin films to form individual batteries and capacitors requires at least a substrate for each component (to be able to handle the devices) plus the substrate to which they are adhesively connected in order to

build the device of *Tuttle et al.* In contrast, depositing the layers successively on a substrate can use as little as a single substrate—something not described or suggested by *Tuttle et al.* Since the Office Action failed to provide a *prima facie* case of obviousness (i.e., it did not provide a prior art reference (or references when combined) that **teach or suggest all the claim limitations** *M.P.E.P.* § 2142, *In re Vaeck*), claims 24, 27, 31, 33, 63-68, 77, and 78 appear to be in condition for allowance, and reconsideration and withdrawal of the rejection are respectfully requested.

Regarding claims 39, 40, 67, 77, or 78, the Examiner also admitted on page 5 of the March 12, 2007, Office Action that *Tuttle et al.* does not expressly teach that a battery and a capacitor are located next to each other on the substrate as recited in claims 39, 40, 67, 77, or 78. The Examiner asserted, however, that the claimed side-by-side configurations of the battery and capacitor, and additionally the capacitor base layer configurations of claims 65 and 66 are considered to be mere rearrangements of the components of *Tuttle et al.* that would be obvious to a person of skill in the art. Applicant respectfully traverses. If the Examiner is relying on common knowledge or taking Official Notice of some other teaching, Applicant traverses this finding and respectfully requests under MPEP § 2144.03 that the Examiner provide documentary evidence in the next Office action if the rejection is to be maintained. *See* 37 CFR 1.104(c)(2). *See also Zurko*, 258 F.3d at 1386, 59 USPQ2d at 1697. Since the Office Action failed to provide a *prima facie* case of obviousness (i.e., it did not provide a prior art reference (or references when combined) that **teach or suggest all the claim limitations** *M.P.E.P.* § 2142, *In re Vaeck*), claims 39, 40, 67, 77, or 78 appear to be in condition for allowance, and reconsideration and withdrawal of the rejection are respectfully requested.

Finally, the Examiner admitted on page 5 of the March 12, 2007, Office Action that *Tuttle et al.* does not teach that the assembly is curved so as to have a concave face and a convex face, as recited in claims 35, 60-62, 69-71, and 75. The Examiner asserted, however,

that it has been held that changes in shape are generally not patentably significant unless a new or unexpected result is achieved (MPEP 2144.04). Applicant respectfully traverses.

Applicant's curved configuration allows the external case of a device such as a cell phone or calculator to be made of such a curved shell (as described in paragraphs [0238] and [0241] and Figures 15K and 15L of the present application). If the Examiner is relying on common knowledge or taking Official Notice of some other teaching, Applicant traverses this finding and respectfully requests under MPEP § 2144.03 that the Examiner provide documentary evidence in the next Office action if the rejection is to be maintained. *See* 37 CFR 1.104(c)(2). *See also* *Zurko*, 258 F.3d at 1386, 59 USPQ2d at 1697. Since the Office Action failed to provide a *prima facie* case of obviousness (i.e., it did not provide a prior art reference (or references when combined) that **teach or suggest all the claim limitations** *M.P.E.P.* § 2142, *In re Vaeck*), claims 35, 60-62, 69-71, and 75 appear to be in condition for allowance, and reconsideration and withdrawal of the rejection are respectfully requested.

CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney (952-898-7558 or 952-435-0201) to facilitate prosecution of this application.

If not otherwise provided herewith, please consider this a request for an extension of time for a sufficient number of months to enter these papers. If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 502931.

Respectfully submitted,

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CERTIFICATE UNDER 37 CFR 1.8(a)(1)(i)(C) (paragraph C being a new amendment to Section 1.8 published in the *Federal Register*, Vol. 72, No. 14, Tuesday, Jan. 23, 2007, page 2773): The undersigned hereby certifies that this document is being electronically filed via the U.S. Patent Office's EFS filing system on this **29th day of October, 2007, Central Time**, addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

By: /Charles A. Lemaire/

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